

# W5YI

America's Oldest Ham Radio Newsletter

## REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable.

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## Petitions for Reconsideration of New Ham Rules Filed!

Alan Wormser N5LF (Austin, TX), Frederick Adsit NY2V (Syracuse, NY) and Michael Dinelli N9BOR (Skokie, IL) have filed a very professionally completed (25-page) *Revised Petition for Partial Consideration of the Report and Order (R&O)* that restructured, streamlined and simplified the Amateur Radio Service. They say their goal is "To ensure that the Amateur Radio Service remains a fundamentally technical service in the 21<sup>st</sup> century as it has remained throughout the 20<sup>th</sup> century."

The R&O was published in the *Federal Register* on February 10, 2000. By rule, petitioners have 30 days in which to request reconsideration. The petition was received at the FCC on February 29.

Their original petition was dated January 17, 2000, but they filed a revised petition was filed when a last minute rules change appeared in the version published in the *Federal Register*.

The petitioners make the following allegations:

- While the R&O simplifies the Amateur Radio Service, it also compromises the basis and purpose of the Amateur Radio Service.
- The R&O discourages technical innovation, unnecessarily lowers technical requirements for licensing, and;
- fails to address major issues brought forth by the comments.

The petitioners address what they call "problems created by the R&O" including:

- (1) decreasing emphasis on the technical questions on the written tests,
- (2) failure to consider comments calling for an end to applicants repeating failed test elements at one sitting by just paying a second fee to the Volunteer Examiner;
- (3) unnecessarily reducing the telegraphy speed requirement for Amateur Extra Class;
- (4) Merging the "Technician" and "Technician Plus" designations within the FCC database, which hampers enforcement and thereby may violate international treaty; and;
- (5) extending exam credits to those whose licenses expired as long as 40 years ago.

The petitioners ask that the Commission reconsider the R&O and:

- (1) retain sufficient question pool categories within Part 97 to maintain, or increase, the proportion of technical and theoretical questions on each written test;
- (2) set the total number of questions per written test to 50 questions each for the Technician and General Classes, and 100 questions for the Amateur Extra Class;
- (3) allow an applicant to fail only one written element and one telegraphy element per VE session (or per day), or declare that such a rule change is beyond the scope of the present rule making;



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- (4) retain the 20 wpm telegraphy test for the Amateur Extra Class, and do not allow code waivers;
- (5) keep "Technician Plus" designation within the FCC's database, and;
- (6) revert to the previous wording on § 97.505(a)(5) which required that a Novice hold an unexpired (or expired within the grace period for renewal) operator license in order to receive examination credit.

"The petitioners are all active, licensed who serve their communities through the Amateur Radio Service," the document reads. A common thread is that they are all members of FISTS, a large organization of CW enthusiasts.

## Emphasis on Technical Questions

They believe that over the past twenty years, the FCC has lowered the testing standards many times while increasing the privileges to less skilled operators. Examples they cite include allowing renewable Novice licenses, publishing the exact questions in the written exams, changing telegraphy exams from 1 minute error-free copy to 10 fill-in-the-blank questions, then 10 multiple choice questions, Novice enhancement which gave Novices and Technicians voice privileges on HF, creating a simplified written test for the Technician Class and removing the telegraphy requirement from the Technician Class.

"Twenty years of reducing standards reveals that a strategy of lowering technical standards does not attract technically inclined individuals — it has the opposite effect. ...modern day codeless Technician Class amateur radio operators are incapable of repairing their own equipment and are dependent on manufactured radios."

The petitioners also fault the new question pools which have less test questions ...and less questions in the pools from which the examination questions are drawn. "...such a reduction will severely reduce the scope of the questions and a less thorough test will result." They believe that the number of examination questions should be 50 each in Element 2 and 3 (Technician and General) and 100 in the Amateur Extra Class.

## Applicants repeating failed tests

The petitioners oppose — and want an end to — "...the practice at VE sessions of allowing license applicants to repeat a failed test element at one sitting by simply paying a second fee. In the case of the ARRL-VEC, who waives the fees for the Novice written test and all telegraphy exams, the candidate can fail test after test until they either pass or the VE team runs out of new versions to give them."

They believe this "...is an unacceptable test procedure and would not be acceptable in any of our schools or certifying boards. Before the VE system was created, applicants who failed a test element had to wait 30 days

before repeating the test."

The petitioners say that "A reasonable rule would only allow an applicant to fail one written element and one telegraphy element per VE session, or per day."

## Amateur Extra Class Telegraphy Exam

The petitioners take issue with the R&O which states that telegraphy is a hindrance to those that might enter the Amateur Service or attempt to upgrade skills. "...the Amateur Extra Class, with the 20 wpm telegraphy exam, remains the fastest growing class of license after the Technician." Telegraphy skill "...is only a barrier to unmotivated individuals. As the ARRL Handbook states, 'learning Morse code is as easy as learning about 40 words in a foreign language.'"

"Almost all HF emergency communications in amateur radio ...use SSB voice supplemented by telegraphy. Reduction of telegraphy skills will severely hamper the ability of the Amateur Radio Service to respond regional and national emergencies."

"The R&O states that the across-the-board 5 wpm speed was chosen, in part to avoid the need for a code waiver. ...We believe that the 5 wpm General Class is reasonable accommodation ...to give disabled persons the opportunity to fulfill the basis and purpose of the Amateur Radio Service."

The petitioners recommend that "... the Amateur Extra Class telegraphy examination be maintained at 20 wpm [and] eliminate the waiver."

## Technician: database records and enforcement

The petitioners take issue with the new rules which "...would end the distinction between Technician and Technician Plus in the FCC database. The burden of proof of Technician Plus status will be on the licensee to maintain his paper license or CSCE in perpetuity."

"[This is an] undue burden on Technician Plus licensees as well as a serious impediment to enforcing the international treaty ...requiring all amateur stations operating below 30 MHz to have demonstrated ability in telegraphy."

"The ARRL-sponsored Amateur Auxiliary (volunteer observers who identify rules violators and gather evidence for the FCC) and other volunteer monitors, depend upon the FCC's license database. If the Commission removes the distinction in the database between Technician and Technician Plus, efforts will be hampered to monitor the amateur bands for unlicensed intruders and the Commission risks violating Rule S25.5n the international treaty."

## Exam credit for those with long expired licenses

The Commission published a last minute change to the Rules which "...extends telegraphy test credit to any individual who ever held a Novice class license, even if it expired over 40 years ago." The petitioners said that



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neither the *Notice of Proposed Rulemaking* nor the R&O addressed this rules change.

They believe the rule is flawed since "It is not an adequate test of telegraphy skills required by the Commission's rules and the international treaty ...for HF operation. A candidate who has not been on the air in 10, 20 or even 40 years, and who never met more than this minimal skill, does not retain skills at the required competence level."

"This new rule is inconsistent with the other regulations regarding exam credits. The remaining rules only extend credits to those who are currently licensed, who are within the 2-year grace period for renewal, or who have passed the element credit within the previous 12 months."

"We request reconsideration of the items discussed above. The petitioners are convinced that the R&O and new regulations are not adequate to maintain the fundamentally technical nature of the service, nor do they comport with the basis and purpose of the Amateur Radio Service."

## ARRL ALSO FILES FOR R&O RECONSIDERATION

On March 13<sup>th</sup> the American Radio Relay League's attorney, Chris Imlay W3KD also filed a (14 page) *Petition for Partial Reconsideration*.

ARRL requests that the Commission:

- (1) continue to maintain records which indicate whether a Technician licensee has passed a telegraphy examination which entitles that licensee to operate on certain high-frequency (HF) amateur bands, and,
- (2) modify the Commission's Rules to specify that any amateur, having passed an FCC-recognized telegraphy examination prior to the effective date of the rule changes ...is entitled to receive credit for the telegraphy element when applying for future upgrades.

The League says these two issues "...should be addressed immediately, and in any case prior to the April 15, 2000 effective date of the R&O..."

"The Commission must, in order to preserve the ability of the Amateur Service to continue to preserve and protect its tradition and obligation to self-regulate, (And as well to protect the integrity of the incentive licensing structure) retain the database distinction between those Technician Class licensees which have completed the telegraphy examination and which have not."

"Furthermore, it must treat individuals identically in terms of element credit in the examination context for those who have at least completed a 5 wpm telegraphy examination as an inherent element of a previously held amateur license, whether or not that license is expired or unexpired."

The ARRL said it "is satisfied that the Commission

has in the R&O, taken progressive steps toward streamlining the license structure in the Amateur Service. ...It also provides, for the first time, a substantial incentive for existing Technician licensees to upgrade their license class, and to proceed with technical self-training...."

The ARRL takes issue with the FCC allegation that maintaining a separate license class for the Technician Plus Class is an administrative hardship. "...maintaining the separate database, can hardly be characterized as a burden at all," ARRL said.

"[It] consists only of the maintenance of a separate field in the database, a field which is already in existence and operational, whereby Technician Class licensees who have passed the telegraphy examination are encoded with a 'P', and those who have not, with a 'T' in the field."

"Amateurs monitor each other's transmissions, and the ability to identify an amateur and to easily and rapidly determine the amateur's license class is an extremely important component of the ability of the Amateur Service to police itself. What will inevitably result if the Commission does not maintain any distinction between the two types of Technician in the database, is that amateurs ...will be unable to determine whether a licensee heard operating on, for example, the amateur 10-meter band and has any entitlement to do so. ...The Commission [must] not deprive the Amateur community of the fundamental tool necessary to conduct its own self-regulatory effort."

The ARRL also believes that the FCC must treat all similarly-situated licensees the same relative to credit for telegraphy exams. "...the Commission affords an examinee credit for the ...5 wpm telegraphy examination if the examinee had at any time held a Technician class license issued prior to February 14, 1991 (when the Technician Class license without a telegraphy examination requirement was first established.) ...there appears no rationale for the different treatment afforded ...similarly situated licensees."

The FCC addressed this problem in the Federal Register [by] amend[ing the Rules] to provide that Element 1 (the new 5 wpm code exam designator) credit would be given to any examinee who held an expired or unexpired ...Novice Class license grant. ...the rules still discriminate between those who hold expired (and beyond the grace period for reinstatement) Novice and Technician Class licenses on the one hand, and those who hold expired (and beyond the grace period for reinstatement) General, Advanced or Extra Class licenses on the other."

"...the Commission should standardize the element credit rules to provide that any amateur who provides proof of having at one time passed an FCC-recognized 5 wpm telegraphy examination ...should receive credit for the Element 1 telegraphy examination."



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## RUSSIAN HAM RADIO LICENSE ISSUED FOR ISS

The new orbiting International Space Station will be manned full time beginning around September 2000. Soon after the first crew moves in, they will install the Amateur Radio antennas and transceivers.

Members of the Amateur Radio on the International Space Station (ARISS) team in the U.S. received word from the Russian team that a Russian station license has been granted for the ISS Ham Radio station. This license is valid for all amateur radio hardware that will be located in the Russian Segment.

It will support the operation and use of the ham radio station in all of the Russian provided segments of ISS. This includes the FGB (or Zarya) module that is currently on-orbit and the Zvezda Service Module that is planned for launch this summer. For more information on the ISS assembly sequence, see <http://spaceflight.nasa.gov/station/assembly/index.html>

During a telephone conversation last week, AMSAT-RU team member Sergej Samburov, RK3DR, informed the U.S. Ham Technical Team that the *Russian Federation Communications Oversight Commission* has granted a license to operate a "Ham Radio Station of the Highest Public Usage Category" for the ISS Russian Segment. The ARISS US team received a copy of the license on March 2. Since that time, NASA has translated the Russian Cyrillic to English for the team.

Frank Bauer, KA3HDO, ARISS-International Administrative Chairman explains that "This specific license enables the on-orbit ISS crews to operate all amateur radio modes and bands. It is a critical step in our future operations of ham radio on ISS. We are excited that the Russian team have made significant progress and now have our first license in place." Sergej Samburov explained to the ham team that this license is required before any ham radio equipment can be installed in the Russian Segment. The station license call sign is RZ3DZR. It was issued on March 2, 2000 and is valid until March 2, 2005.

The new license allows for the operation of home-made or commercial amateur radio equipment on board the Russian modules of the ISS. This new call sign will probably not be the last.

One of the problems still to be ironed out is the handling of third-party traffic since there is no Third-Party Agreement with Russia. At the present time, the ISS is classified as a Russian craft. As such, third party traffic - including most school schedules - are not permitted unless the students on the ground hold a valid Amateur Radio license.

The ARISS International team is working on a long term plan for a single, international ISS station license and an effort is underway to get a call sign from the

United Nations. This will allow all the international crew members to operate different hardware that will comprise the ham radio station in any part of the ISS without third party restrictions in their country.

This was discussed at the ARISS meeting in Surrey, England in July 1998 and at the IARU Satellite Meeting during the 1999 AMSAT-NA symposium in San Diego, California. It is also an agenda topic for the upcoming ARISS meeting that will be held near Amsterdam. The ARISS team is working with the IARU to develop a long term, international solution.

In the meantime, the team is pursuing licenses in each of the member countries. The U.S. team will soon apply for a station license to allow Bill Shepard, KD5GSL, to use the station later this year.

The ARISS team is working with the ISS Space Agency partners to prepare the crew and hardware for use later this year. [Thanks: KA3HDO, WF1F]

## SYDNEY SUMMER OLYMPICS USING 70-CM HAM BAND

The 70-cm ham band is being used by the *Sydney Organizing Committee* (SOCOG) to facilitate the Olympic Games. The 421 MHz to 432 MHz band will provide for the communications needs of the Sydney 2000 Summer Olympics.

Australian amateurs have been advised by the *Australian Communications Authority* (ACA) that they must avoid operating in this band within 150 km (about 100 miles) of the Sydney Olympic Stadium until 31 December 2000. (Four months after the games end to allow time for tear down of various Games facilities.)

The Sydney Olympic Radiocommunications Network (SORN) is a trunked radio network especially created to support the staging of the Games. The network, implemented by Telstra, provides for 200 channels with a channel width of 12.5 kHz.

Motorola Astro handheld and base transceivers are being used which are fully programmable over the range 403 MHz to 433 MHz. The SORN has actually been in operation for some time now in order that technical and operational problems could be identified and addressed.

In a letter to Australian amateurs, the ACA announcement said "Although the Games last for just 19 days, they will require the most complicated deployment of Australian non-military resources in the history of the nation. [We] appreciate the inconvenience borne by Amateur licensees to enable the SORN to operate. While your and our role in the Games is modest in many respects, it is still an important one that is valued by those concerned. I believe that the staging of the Games is an excellent opportunity for all of us to showcase who we are and what we represent. I am confident we can work together to make the Games an excellent event."



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## CUTTING EDGE TECHNOLOGY

■ **The newest public-address systems in airports, hotels and other heavy-traffic areas adjust their own volume.** Airport pedestrian traffic has "rush hours," just like freeways. Microphones listen to room noise and automatically adjust the amplifier volume when rooms or concourses get noisy. When things die down, the P.A. returns to its original volume. In this way people won't miss messages in a crowd or be deafened in a quiet room.

■ **You may want to wait before purchasing a CD "burner."** Not all DVD players or CD players can yet recognize or play a CD that's been programmed by a home user. Even though the formats are supposed to be compatible, they often are not. Sometimes the laser inside one type of player gets confused because a particular disc was programmed with a slightly different type of laser.

■ **Although gas prices in America are going up, our electric bills remain among the lowest of industrialized countries.** Over 600,000 miles of transmission lines make up the "grid" of interconnecting circuits, making our electrical "uptime" practically constant.

■ **Can a light-emitting diode (LED) cause radio-frequency interference (RFI)? Yes, in a roundabout way.** If the lengths of the leads of one or more LEDs on a circuit board are just right, they can act as antennas for undesired signals and frequencies. Several hardware engineers have learned this the hard way. They eliminate this by using surface-mount LEDs, which incorporate much shorter leads, and deliver the light to the outside world by means of a transparent light pipe.

■ **Storm season is approaching.** To save time and money, some insurance companies send their adjusters into the field after accidents and disasters with digital cameras and digital pen tablets.

■ **If you need a gasket to help shield a piece of equipment from RFI,** but can't find one of that particular shape and size, you might be able to make your own. Instrument Specialties is one company that makes "gaskets in a tube," allowing you to literally squeeze a cavity full of RFI-shielding compound and let it cure in a few hours. You don't have to mix it

together and it's good for frequencies up to 1 GHz.

■ **The Next Generation Space Telescope (NGST) may be launched in 2008.** While currently still in the design stage, NASA hopes to receive even more useful data from it than the Hubble Space Telescope. The highly successful Infra-Red Astronomical Satellite (IRAS) project still keeps astronomers busy examining the universe in the infra-red spectrum, and engineers want to incorporate that capability into NGST as well as optical astronomy. Three aerospace firms are working on designs for the project.

■ **It doesn't take much dust to degrade a fiber-optic data link.** Since it's so small and hard to see, how can you tell if enough dirt on the end of a cable could cause trouble? Westover Scientific makes a handheld display that makes it easy. You plug in a handheld device with a liquid-crystal display; an optical cable sends up an image of the fiber connector you're examining, and the tester expands the size of the image so you can see at a glance how clean the connection is. Particles as small as one micron can be found this way. Clean off the fiber end and you can re-examine it for cleanliness, and therefore get higher bandwidth.

■ **Lighting engineers say that it's cheaper in the long run to replace all the lamps in a building at the same time, whether they've quit working or not,** rather than replace bulbs individually when they fail. Labor is the biggest cost. Experts say that the best time for a brute-force replacement of bulbs is when they've reached 70% to 80% of their rated life.

■ **Skyboxes at some athletic arenas offer full-color, full-motion video computer screens built into chairs.**

You can select different camera angles of the playing field, call up statistics on players and teams, replay a particular event in slow motion, and even order a snack.

■ **Compact discs can hold more data if the lasers reading them are blue instead of red.** The shorter wavelength makes this possible, but getting blue lasers to perform reliably at room temperature has long been a problem. But at least one manufacturer has made this work, going so far as to make the wavelength even shorter -- into the violet range. Engineers claim over 27 gigabytes of data can be stored on a single layer of a standard compact disc.

## EMERGING COMMUNICATIONS

■ **In a stunning embarrassment for telecommunications giant Motorola and other major companies, the end has come for Iridium!** It was one of one of the costliest corporate flops of all time.

Satellite phones seemed like a great idea 15 years ago but it hasn't worked out that way. The idea was to use a global constellation of 66 interconnected LEO (low flying) satellites tied into various up-link gateways around the world. Small palm-sized handsets would be used to provide communications to even the remotest areas on earth. The FCC granted Iridium an operational license in 1995. Backed by Motorola, it took three years and more than \$5 billion to launch and build the network.

Iridium began operation in November of 1998 amid complaints of mismanagement, bulky, poorly designed transceivers "as-big-as-bricks" and sky-high prices. The handsets -- which would not work indoors -- cost as much as \$3,000 plus up to \$7 per minute airtime for calls.

CEO Dr. Edward F. Staiano resigned and a new marketing plan was put in place by his successor at greatly reduced prices. But Iridium continued to miss its subscriber targets badly. Iridium was also hurt by the rapid development of low-priced ground-based wireless networks. Unable to make payments on some \$4.4 billion it had borrowed, Iridium filed for bankruptcy ten months later.

Iridium was officially shut down at midnight March 17<sup>th</sup> when the beleaguered satellite-phone service told a bankruptcy court it couldn't find a qualified buyer. The bankruptcy judge gave Motorola permission to cut off service to its 55,000 customers and to "de-orbit" the constellation of 66 satellites.

While Motorola can quickly shut off the satellite phone service, pulling down the satellites will take up to two years. Keeping them aloft would be a hazard to other spacecraft. The satellites will be moved one at a time into a lower orbit, where they would burn up in the Earth's atmosphere. A satellite network execution if you will.

A month ago, billionaire cellular phone pioneer Craig McCaw expressed an interest in keeping Iridium afloat but later withdrew his offer. He already is develop-



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ing Teledesic, another satellite network that will provide wireless Internet access.

A last ditch effort by a California telephone entrepreneur also fell through. Gene Curcio, owner of privately held Los Angeles-based Crescent Communications, wanted Motorola to agree to continue operating Iridium's satellites for another 60 to 90 days. After the three-month period, Curcio had arranged for General Dynamics Corp. to take over operation of the satellites. He was going to use the Iridium system to provide mobile-phone service in areas of the world poorly served by land-based phones, such as in remote parts of Brazil, Africa and the Middle East.

■ **Long-distance telecommunications companies are expected to install about 11 million kilometers of fiber-optic cable this year.** This is because of estimates that data traffic doubles every 12 months. While this is more fiber than has been deployed in previous years, that number will actually shrink again in the near future. As network capacities are fulfilled, the telcos will focus on shorter lengths of cable -- delivering data locally directly to the home user.

■ **V-chip ratings for television programs are available constantly, not just at the beginning of each show.** But you need a special device (which may already be available in newer receivers) to see them. Data for V-chips is hidden inside the vertical blanking interval (VBI), on line 21. It's transparent to the average TV set and viewer, but a dedicated device (such as the VC-2 by Broadcast Video Systems) can grab this information from the video signal and display it on its front panel. You can see at a glance what the age and content ratings for the current program are. Newer receivers may let you call up this information directly on an on-screen menu with the push of a button.

■ **"Pirate" radio broadcasters in Great Britain have found a new way to attract listeners: grab them!** They're making use of digital data that new car radios include for traffic information. The Radio Data System includes data in its FM radio signal, which motorists seek to avoid highway tie-ups. When an RDS traffic announcement is made, all radios programmed to seek it automatically lock on to that radio station's signal.

Some unscrupulous pirate broadcasters transmit phony RDS traffic announcements constantly, thereby automatically "kidnaping" listeners to their station. The

radios will remain on that particular frequency unless or until the listener turns off the RDS mode or drives out of range. British investigators are working on putting a stop to this.

■ **High-Definition Television (HDTV) may suffer from obsolete technology so quickly that hardware manufacturers are working on ways to keep the new receivers from going out of date.** One way to prevent that could be periodic software updates. But what is the best way to issue them? Most people won't be comfortable with trying to connect a CD-ROM to a TV set, and they certainly won't haul their heavy receivers out of the house for a trip to the shop for a simple upgrade. The fastest, cheapest way would be using the digital data stream of the HDTV signal itself. Bypassing the home user entirely would eliminate a lot of headaches.

■ **An Internet television rebroadcasting venture is now "off the air."** The Canadian company iCraveTV, which gathered broadcast TV signals from 17 stations that reach Toronto and began making them available worldwide over the 'Net in November 1999, was taken to court by several media powerhouses for copyright infringement. Movie studios, the National Football League, and the National Basketball Association were among those who sought to keep iCraveTV from rebroadcasting their programs. iCraveTV is working on an appeal.

## COMPUTER INFO

■ **A few colleges are experimenting with a new type of student I.D. card.** Half identification card and half credit card, it incorporates a magnetic stripe so it can be read by digital card readers all over campus. These cards include readily viewable photographs of the students, but also tell computers each student's current status: active student (so dropouts in mid-semester can't get access to campus computers), library fines, and whether or not said student belongs in a particular dorm. It helps prevent voter fraud during student elections and keeps non-students away from sensitive areas such as employment records or main computers.

■ **As NASA will testify, space is a very hazardous environment and difficult to keep spacecraft alive in.** It

takes only one cosmic ray in just the right place to totally disable a probe's guidance system or flight-control computer. NASA has always included, whenever possible, backups for vital systems -- vital for robot probes that will be on their own for years at a time. A program is now under way to study the possibilities of self-repairing computers for use in aerospace applications. There are already computers being used on Earth that "reconfigure" themselves when internal errors are detected; ruggedizing them for space could mean prolonged life for deep-space probes. As electronic systems become more complex, their chances for failure increase. Reconfigurable computers constantly monitor themselves and can fix or report problems, with or without help from ground controllers.

## INTERNET NEWS

■ **The \$11 billion video game industry is heading to the web.** With the connectivity that the Internet provides, gamers will be able to play games with real people all across the globe. But you will have to wait until 2001 to do it.

Sony introduced their new PlayStation2 in Japan on March 3<sup>rd</sup> and sold nearly a million units the first weekend it was offered. Nearly half were ordered online. It will be available in the U.S. this fall at about \$299.

The next-generation PS2 system can play audio CDs and DVDs right out of the box and Sony is being accused of selling DVD players whose functions on copyright protection can easily be manipulated. The PS2 can not connect to the Internet. At least not yet. Sony plans a broadband upgrade next year which will offer a hard drive as an add-on component.

The market for video games is huge. The original PlayStation sold more than 70 million consoles (26 million in the U.S.) And over 500 million games were bought at stores. But, beginning next year, the major outlet for game software will be web downloads.

Microsoft is entering the broadband-enabled video game foray with a new DVD-ROM based video game console called the "X-Box." Powered by a Pentium III 600-MHz chip, it will be able to connect to the Internet to collect games into its 8 Gig hard drive. The console, which has support from every major game



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software publisher, is being readied for Christmas 2001 sales. Microsoft has earmarked \$250 million to promote the "X-Box" ...a higher figure than competition.

Sega of America Inc. has already added a modem to its next-generation Dreamcast system. And Nintendo is working on a new IBM Power-PC chip console (code-named "Dolphin") to replace its N64.

## WASHINGTON WHISPERS

■ In a Notice of Inquiry issued on March 17<sup>th</sup>, the FCC asked for public comment on a new generation of radio equipment under development that can be quickly reprogrammed to transmit and receive on any frequency within a wide range using virtually any transmission format. This programming capability could allow a single device to transmit in the various cellular, PCS and other wireless services used in the U.S. and worldwide.

The FCC stated that introduction of this new technology, referred to as "software defined radio" (SDR), has the potential to change the way users can communicate across traditional services. SDR, first demonstrated in a Department of Defense project in 1995, has the potential to promote more efficient use of spectrum, expand access to broadband communications for all persons and increase competition among telecommunications providers.

The Commission sought comment on how SDR technology could affect a number of Commission functions in the future, including spectrum allocation, spectrum assignment and equipment approval.

In a software defined radio, functions that were formerly carried out solely in hardware, such as the generation of the transmitted signal and the tuning and detection of the received radio signal, are performed by software that controls high-speed signal processors.

FCC Chairman Bill Kennard said "we are running out of spectrum. One way to head off a spectrum drought is to make sure that the spectrum that we have licensed is always in use. Software defined radios are smart devices that can make good use of underused spectrum. They can operate as a cell phone one minute, a PCS phone the next, a taxi dispatch radio later on and a two-way pager after that."

■ The average Technology Mutual Fund is up a sizzling 26.8% for the

first two months of this year and +183.3% for the trailing year. As a group, they have averaged an annual increase of 66.6% over the past three years.

Telecommunications funds are up 12.8% this year, +76.0% for the past year. Their annual increase over the past three years is 52.5%. No other business sectors come close to this performance!

Is it a surprise that the Technology sector is doing so well and the so-called "Old Economy" has cratered somewhat? Not according to a 1999 report from the U.S. Department of Commerce's Office of Technology Policy. Here is an excerpt from "The Digital Workforce". [Quote]

### The Vital Role of Information Technology in the U.S. Economy

Technology has contributed almost half of the Nation's long-term economic growth since World War II. And IT [Information Technology] is the most enabling technology in the world today. It is responsible for new products and services; creating new companies and industries; providing new venues for commerce; enhancing our ability to manage information and to innovate; and improving our productivity; quality of life; and national standard of living. IT is changing the way we live and work, and transforming the economy at a fundamental level. The evidence is ubiquitous.

- Information technology's share of the U.S. economy nearly doubled between 1977 and 1998, growing from 4.1 percent to 8.2 percent.
- Information technologies contributed more than a third of real U.S. economic growth between 1995 and 1997.
- The cost of computing - measured in millions of instructions per second, or MIPS - fell 98.5 percent from \$230 in 1991 to \$3.42 in 1997. And the price per MIPS is expected to fall below a dollar this year [1999], and to about one-fifth of a cent within a decade. This decline in computing costs is credited with reducing inflation by more than a full percentage point in 1997.
- In 1994, three million people used the Internet. Year end 1998 figures indicate more than 147 million people worldwide were accessing the Internet at least once a week from home or business. The number of Internet users is projected to grow to approximately 320 million by 2000, and to 720 million by 2005.

- Traffic on the Internet is doubling every 100 days. This rapid growth in traffic is generating demand for both hardware and software, as well as for skilled IT workers to implement and manage these systems.

- Between 1998 and 2003, U.S. business-to-business commerce over the Internet is projected to grow from \$48 billion to \$1.3 trillion, with an additional \$1.8 to \$3.2 billion in global e-commerce, and U.S. consumer sales over the Internet are projected to rise from \$3.9 billion to \$108 billion.

For years, economists have expressed skepticism about IT's contribution to economic growth and productivity improvements. In recent years, many economists have come around. Today, one of the Nation's leading economists, Federal Reserve chairman Alan Greenspan, is an enthusiastic supporter of the vital role of IT in the U.S. economy. Last year chairman Greenspan told a business audience in North Carolina,

"The United States is currently confronting what could best be described as another industrial revolution. The rapid acceleration of computer and telecommunications technologies is a major reason for the appreciable increase in our productivity in this expansion, and is likely to continue to be a significant force in expanding stands of living into the twenty-first century. [End Quote]

■ The FCC has denied the Petition for Reconsideration filed by Cellular Systems Northwest, Inc. appealing a \$7,000 fine issued by the FCC a year ago. In July 1997, Northwest, a consumer electronics dealer in Enumclaw, Washington, sold an illegal radio frequency power amplifier to an undercover agent from the FCC's Seattle Field Office capable of operation in the 26.965 to 27.405 MHz Citizens Radio Service. On March 19, 1998, Northwest offered to sell another linear amplifier to a different FCC agent from the same Field Office.

Northwest was issued a fine in the amount of \$7,000 on June 19, 1998. Northwest said (1) that it never intended to offer or recommend the amplifiers for CB use; (2) its violation was not intentional; (3) that it has ceased selling the illegal equipment; and (4) that it is a "small retailer" trying to make ends meet.

Northwest asked for cancellation or reduction of the fine on the basis of inability to pay the \$7,000 amount. The FCC



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said that Northwest failed to provide sufficient justification and the firm was ordered to pay the fine within 30 days.

## AMATEUR RADIO

■ **The Radio Society of Great Britain announced that effective March 5<sup>th</sup>, their GB2RS News radio service is aired live on the Internet.**

Adrian, G7WFM, holds a NoV (a *Notice of Variation* is a special authorization from the UK Government) enabling him to interface amateur radio to the Internet. The GB2RS News is aired locally in Nottingham, UK on 431.075MHz simplex at 1030 UTC and relayed live to the G7WFM Conference Room on I-phone. This will be repeated on Monday evenings at 2230 UTC.

■ **It looks like Australia will be next to join the growing list of countries that are opting for a top Morse code exam speed of 5 wpm.** By a unanimous vote of all states and territories, the Wireless Institute of Australia – the world's oldest radio society formed in 1910 -- is on record as officially favoring the reduction of the Morse test requirement from 10 wpm to 5 wpm

A letter of notification has now been sent to ACA, the *Australian Communications Authority*, by the WIA.

■ **The ACA has adopted a new standard for human exposure to radio frequency electromagnetic radiation (RF EMR) in Australia.** Amateur Radio, due to the wide frequency range and experimental nature, presents a complex problem in the development of easy to understand and apply regulations.

The ACA is proposing to provide a EMR guide for each Amateur class of service that is easy to apply and largely non technical. The WIA will be actively involved in the drafting of these information guides which will be based on FCC documentation.

■ **WIA Federal President, Peter Naish VK2BPN, has received confirmation from the ACA that all Australian radio amateurs may use the optional "AX" callsign prefix to commemorate the Sydney Olympic Games.** The period during which this may be used is 15 June 2000 to 2 November 2000 inclusive.

■ **In our last issue we quoted Glenn**

**Baxter K1MAN as saying:** "...his timer-controlled transmissions were no different than those of the timer-controlled ARRL headquarters station W1AW." We received a note from ARRL Exec. VP Dave Sumner K1ZZ saying "We do not make, and never have made such transmissions. There is always a control operator on duty at this station when it is on the air."

■ **Leonard D. Martin, Ex-KC5WHN of Houston, Texas has been issued a fine (Notice of Apparent Liability for Forfeiture or NAL) in the amount of \$17,000.** Martin was warned in late 1998 that it had received complaints that he operated on unauthorized frequencies. Martin denied the charge.

On Feb. 27, 1999, the FCC monitored unidentified voice transmissions on 27.545 and 27.535 MHz – the so-called "free band" located between the CB and Amateur ten meter band. The station responded to the name "Leonard". Using a mobile automatic direction finding ("MADF") vehicle, the FCC determined that the source of the transmission was an antenna at Martin's residence. The following month, the FCC again monitored a station identified as "Leonard" on 27.370 MHz operating from Martin's home.

The FCC agent asked to inspect the station, but was refused. On April 2, 1999 Martin was cited for operating his Amateur station on unauthorized frequencies and for refusing inspection. Martin responded by submitting his Amateur license KC5WHN for cancellation on July 22<sup>nd</sup>.

On October 19, 1999, one of Martin's neighbors complained that his operation was continuing which was confirmed the same day by FCC monitoring. Again Martin refused station inspection.

On March 3, 2000, Martin was issued a "forfeiture" (FCC fine) in the amount of \$10,000 for unlicensed operation and \$7,000 for failure to allow inspection. He was ordered to pay the full amount within 30 days or "...file a written statement seeking reduction or cancellation of the proposed forfeiture."

■ **Other enforcement news: Stuart L. Linder (Technician Class) of Cincinnati, OH has had his Amateur station N8WLY license canceled for failure to appear for re-examination prior to February 29, 2000 as required by the FCC.**

**Angos Winke of Los Angeles, CA claims the KC6OKA/K6PYP repeater** "is part of the emergency communications

system used by the Veterans Administration as part of its emergency radio service" and that the repeater is coordinated. The FCC said "While there is no requirement for coordination, Section 97.205 states that in the case of interference between a coordinated repeater and an uncoordinated repeater, the licensee of the non-coordinated repeater has the primary responsibility to resolve the interference." Winke was asked to provide documentary evidence of these claims within 20 days.

**Thomas F. Reynolds, Sr., N4TFR (Technician) of Salisbury, NC** has been cited by the FCC for using high power Amateur equipment on the Citizens Band and for "...offering for sale, over the air on those frequencies, transmitting equipment not meeting the Commission's certification standards." He has been given 20 days to respond to the allegations.

For the second time, **Feaster B. Ashley K4MFU (General Class) of Walterboro, SC** has been asked to verify his present station address and to file an address change if his present address is different from Commission records. Failure to do will result in a fine.

**Dean M. Brown AC5IU (Extra Class) of Albuquerque, NM** was warned that the FCC's "High Frequency Direction Finding Center in Columbia, MO indicates that you deliberately interfered with the radio operation of other licensed Amateurs on the 20 meter band on March 2, 2000." He is to contact the FCC..

**Ronald Marshott N2NGY (Advanced Class) of Berkeley Heights, NJ** was warned and asked to contact the FCC relative to allegations that he has been deliberately interfering with 75-meter Amateur communications.

The FCC has asked **Stoddard B. Reid KF6ZSI (Technician) of San Rafael, CA** to respond to the allegation that he failed to properly identify his station on 2-meter repeaters in his area.

**Lonnie H. Allen N0TBO of Crane, MO** had his General Class license canceled Feb. 23, 2000 for failure to appear for re-examination. He retested on March 4, 2000 and was granted a Technician license, KC0HJP. The FCC has now set that license aside "...due to allegations that raise questions about your qualifications to hold an Amateur Radio license."

In addition, one Technician Class, three Advanced Class and two Extra Class licensees have been ordered to retake their license examinations.



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## PETITION FILED TO REDUCE AMATEUR SPECTRUM ALLOCATED TO MORSE CODE COMMUNICATIONS

On March 9<sup>th</sup> Dennis Kippa, KW5G of Hawkins, Texas and David J. Hill, W5XK of Mount Pleasant Texas filed a *Petition for Rulemaking* with the FCC. They request that the amount of Amateur high frequency spectrum reserved for CW operation only – be reduced by about 50 percent. They state:

"Whereas the Amateur Radio bands have historically had large portions of the radio spectrum reserved for and devoted to the CW mode of communications and whereas this mode of communication is archaic and abandoned by all Federal Agencies except the Amateur Service the Commission can no longer justify the broad reservations of the radio spectrum for CW only."

They say "A study of the following chart shows that the CW reservation is totally unjustified and that the phone bands are proportionally disadvantaged."

Frequency Band	Spectrum Reserved for CW	Percentage of Band, CW Only	Total Available Spectrum/Band
10 Meters	300 kHz	17.7%	1.7 MHz
12 Meters	40 KHz	40%	100 KHz
15 Meters	200 KHz	44%	450 KHz
20 Meters	150 KHz	42.8%	350 KHz
30 Meters	50 KHz	100 %	50 KHz
40 Meters	250 KHz	50%	500 KHz
75/80 M.	250 KHz	50%	500 KHz
160 Meters	200 KHz	100%	200 KHz

The petitioners believe that "...due to advances in radio communications and license upgrades phone band crowding cannot be justified any longer. A more realistic approach would be:"

Frequency Band	Spectrum Reserved for CW	Percentage of Band, CW Only
10 Meters	28.000 – 28.100	6%
12 Meters	24.890 – 24.910	20%
15 Meters	21.000 – 21.100	22%
17 Meters	18.068 – 18.088	34%
20 Meters	14.000 – 14.100	28%
30 Meters	10.100 – 10.120	40%
40 Meters	7.000 – 7.100	33%
80 Meters	3.500 – 3.600	20%
160 Meters	1.800 – 1.820	10%

"This change of the CW only bandwidth will help to alleviate the chaotic overcrowding on the voice portions of the amateur bands. This is especially true of the 80, 40 and 20-meter bands."

"It is expected that a large portion of Amateur Radio operators will and are upgrading to higher-class licenses and to more phone privileges. A large phone spectrum is needed to accommodate the expected increase in activity."

## AMATEUR RADIO SPECTRUM PROTECTION ACT OF 2000

On March 6, 2000, Senator Mike Crapo (R-Idaho) introduced S 2183, a bill to ensure the availability of spectrum to amateur radio operators. Speaking on the floor of the Senate, he said "Organized radio amateurs, more commonly known as 'ham' operators, through formal agreements with the Federal Emergency Management Agency, the National Weather Service, the Red Cross, the Salvation Army, and other government and private relief services, provide emergency communication when regular channels are disrupted by disaster."

"Not only do they provide these services using their own equipment and without compensation, but they also give their personal time to participate in regular organized training exercises. In addition to emergency communication, amateur radio enthusiasts use their spectrum allocations to experiment with and develop new circuitry and techniques for increasing the effectiveness of the precious natural resource of radio spectrum for all Americans. Much of the electronic technology we now take for granted is rooted in amateur radio experimentation. Moreover, amateur radio has long provided the first technical training for youngsters who grow up to be America's scientists and engineers."

"The *Balanced Budget Act of 1997* requires the Federal Communications Commission to conduct spectrum auctions to raise revenues. Some of that revenue may come from the auction of current amateur radio spectrum. This bill simply requires the FCC to provide the Amateur Radio Service with equivalent replacement spectrum if it reallocates and auctions any of the Service's current spectrum."

"The *Amateur Radio Spectrum Protection Act of 2000* will protect these vital functions while also maintaining the flexibility of the FCC to manage the nation's telecommunications infrastructure effectively. It will not interfere with the ability of commercial telecommunications services to seek the spectrum allocations they require. I ask my colleagues to join the more than 670,000 U.S. licensed radio amateurs in supporting this measure and welcome their co-sponsorship."

The bill was referred to the Committee on Commerce, Science, and Transportation. S 2183 mirrors HR 783 which was introduced in the House on Feb. 23, 1999.



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## RADIO FREQUENCIES TO BECOME A COMMODITY

"...radical overhaul of the rules governing one of the most valuable, if intangible, forms of property in the new economy..."

The concept of public airwaves - at least for some frequencies - may be over! Radio frequencies are planned to become commodities that can be bought, sold and rented ...like pork bellies, cattle, soybeans and winter wheat.

The *New York Times* reported on March 13<sup>th</sup> that the FCC is working on a system under which holders of unused or underused commercial radio frequencies will be able to offer them to other firms. The new planned rules would create a spectrum trading system in which telecommunications companies of all kinds could bid for underused slivers of the spectrum that are already under the control of other companies.

Under the current system, the federal government licenses users and determines which frequencies, signal power and purpose it can use. Older licenses were not auctioned - instead they were given away through a comparative selection system or by lottery. More recently, radio frequencies were sold by the Government to the highest bidder. Licensees have never been able to sell or offer their frequencies to others. That apparently will change.

The FCC is concerned that since the demand for radio frequencies far outstrips supply and that new wireless services may be prevented from coming to market. Internet traffic is increasing dramatically, much of it through new and planned wireless devices and handheld computers. FCC Chairman Bill Kennard says it would be a tragedy if the migration of the Internet to inexpensive wireless hand-held devices was prevented by the lack of radio spectrum.

The Times said that in deregulating the spectrum to create the new spectrum market, the FCC would permit holders of airwave slices to profit from any surplus frequencies by offering them to others to use for periods when they are not needed.

## "Guard Band Managers" - A new class of FCC license

The move to deregulate radio spectrum assignment has now begun. In the *Balanced Budget Act of 1997*, Congress directed the FCC to reallocate spectrum in the 700 MHz band to commercial and public safety (police, fire, etc.) uses from its previous exclusive use for television broadcasting service on channels 60-69. A total of 36 MHz was allocated for commercial uses.

In a January 6, 2000 *Report and Order*, the FCC adopted service rules for 30 MHz of this spectrum. At that time, the FCC designated the remaining 6 megahertz as Guard Band spectrum consisting of two paired bands, one of 4 megahertz and one of 2 megahertz.

On March 8<sup>th</sup>, the FCC adopted new licensing and service rules governing the operation of the so-called "guard band" spectrum in the soon-to-be auctioned 700 MHz band. These guard bands are being utilized to fulfill the Congressional mandate to protect public safety services that operate within the 700 MHz band from any harmful interference from adjacent commercial users. The FCC said public safety licensees should experience no greater interference risk from Guard Band users than from other public safety licensees.

Each guard band contains 6 MHz; the FCC proposes to auction the spectrum in two blocks, one of 4 MHz and the other of 2 MHz. Those who obtain rights to the spectrum are deemed "guard band managers" (GBMs). [*We think Radio Frequency Spectrum Brokers would be a better name!*] Guard Band Managers will be required to adhere to strict frequency coordination and interference rules, and control use of the spectrum so as to facilitate protection for public safety.

Guard Band Managers will be engaged in the business of subdividing the radio frequency spectrum they acquire at auction and leasing it to third parties.

Guard Band Manager licensees have many potential benefits, including:

- (1) Guard Band Managers will provide for market-based transactions in wireless capacity at a time when access to spectrum is a critical need for a wide variety of wireless operations;
- (2) spectrum users will have more flexibility in obtaining access to the amount of spectrum, in terms of quantity, length of time, and geographic area, that best suits their needs;
- (3) development of a "free market" in spectrum could result in more efficient use of this limited resource;
- (4) this licensing approach will streamline the day-to-day management of this spectrum and many spectrum-related functions now carried out by the FCC in other bands will be handled by Guard Band Managers in this band.

The Guard Band Manager may subdivide its spectrum in any manner it chooses and make it available to system operators or directly to end users for fixed or mobile communications, consistent with the frequency coordination and interference rules specified for these bands.

This licensing represents an innovative spectrum management approach that should enable parties to more readily acquire spectrum for varied uses, while streamlining the Commission's spectrum management responsibilities.

The guard band order is a forerunner to FCC Chairman Kennard's plan to revise the FCC rules to allow for spectrum to be commoditized.

[Action by FCC March 8, 2000 by Second Report and Order, ]